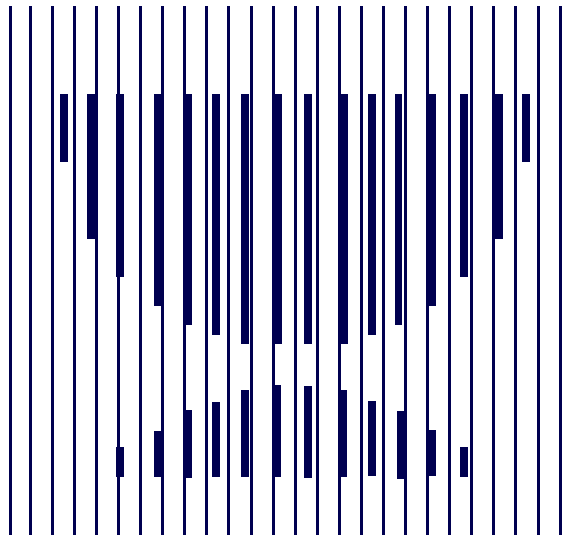


CBO MEMORANDUM

EFFECTS OF MANAGED CARE: AN UPDATE

March 1994



CONGRESSIONAL BUDGET OFFICE

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This Congressional Budget Office (CBO) memorandum updates and revises two earlier CBO reports--a June 1992 CBO staff memorandum, "The Effects of Managed Care on Use and Costs of Health Services," and an August 1992 CBO staff memorandum, "The Potential Impact of Certain Forms of Managed Care on Health Care Expenditures." This memorandum surveys the latest research on the effects of various kinds of managed care and summarizes CBO's assessment of that evidence.

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SUMMARY

This memorandum updates previous assessments by the Congressional Budget Office of the effects of various kinds of managed care on health care costs. The latest research in this area supports two major findings.

First, managed care programs, especially health maintenance organizations (HMOs), provide lower-cost health care that appears to be generally as good as the care typically provided in the fee-for-service (FFS) sector. However, the amount by which HMOs reduce per-patient costs compared with FFS care is often overstated. Some studies do not adequately control for the typically healthier people who enroll in HMOs compared with people in the FFS sector, and so the lower costs of care observed for HMOs reflect the favorable characteristics of the enrolled population in addition to the cost-reducing effects of the HMO form of managed care. Further, some studies rely on results from selected HMOs that are more effective than is typical for HMOs nationwide, so that reported savings are higher than would be obtained on average for all HMOs in operation. Finally, some studies compare costs for HMOs with costs in a fee-for-service sector that lacks any managed care; because nearly all FFS plans now have some elements of managed care, the relative advantage of HMOs compared with the current FFS sector is decreasing.

Recent nationally representative evidence (for 1989) indicates that the most effective HMOs can reduce use of services by about 12 percent compared with unmanaged care, or by about 9 percent compared with the FFS sector, which is a mix of managed and unmanaged care. When the performance of current HMOs (plans with varying levels of effectiveness) is considered, evidence indicates that they reduce use of services by an average of about 7 percent compared with unmanaged care, and by an average of about 4 percent compared with the FFS sector.

The second major finding is that under certain conditions, the independent practice association (IPA) form of HMO can be as effective as group- or staff-model HMOs in providing low-cost care, but the necessary conditions are not often met. The IPAs that are most likely to approach the effectiveness of the best group/staff HMOs are selective about using cost-conscious providers, maintain an effective network for information and control, place providers at financial risk, and generate a substantial portion of each provider's patient load.

Many IPAs in the current mix do not have the above characteristics, however, and do not match group/staff HMOs in effectiveness. Recent nationally representative evidence indicates that IPAs reduce use of services by

an average of about 3 percent compared with unmanaged care, or by less than 1 percent compared with the FFS sector.

Although HMOs appear to reduce the level of health care costs, there is no credible evidence that they also reduce the rate at which costs subsequently increase. The claim that the rate of growth is lower for HMOs than for FFS plans is based on a comparison of growth in premiums over the past few years. That evidence, however, is too weak to support any conclusion about the relative growth of costs for different types of plans. A valid comparison of costs among plans must look at total costs, including patients' out-of-pocket costs for services that are typically covered. Because slower growth of premiums for HMOs in recent years has been at least partly offset by higher growth in HMO enrollees' out-of-pocket costs for services, one cannot conclude that total costs per HMO enrollee have grown less rapidly than costs per enrollee in FFS plans. In fact, total costs per enrollee may have grown as rapidly or more rapidly in HMOs than in FFS plans. In the absence of reliable data on changes in total costs for HMOs compared with those for FFS plans, the prudent assumption to make is that the rate of growth in costs is about the same. In any case, a focus on whether or not managed care reduces the rate at which health care costs grow subsequent to its initial effect on the level of costs is probably misplaced, because the two effects are impossible to distinguish empirically when insurers are continually adopting new elements of managed care.

Nonetheless, effective forms of managed care might slow the rate of growth in costs if they were part of a comprehensive restructuring of the health care system that incorporated strong incentives to compete on the basis of price and quality. Under such circumstances, managed care might more consistently eliminate unnecessary or ineffective care. Further, it might facilitate greater control over the adoption of new cost-increasing technology and might encourage the development of cost-reducing alternatives.

INTRODUCTION

The Congressional Budget Office (CBO) last summarized its assessment of research into the savings from various forms of managed care in a CBO staff memorandum released in June 1992.¹ Specific illustrative assumptions about the savings to be expected--compared with unmanaged care in the fee-for-service sector--were used in a subsequent CBO memorandum released in August 1992.² This memorandum updates and revises the earlier ones.

Early research into the effects of managed care focused primarily on utilization review programs and on group- or staff-model health maintenance organizations (HMOs), but recent studies have begun to assess other forms of HMOs (such as independent practice associations, or IPAs) and other forms of managed care (such as preferred provider organizations, or PPOs) as well.³ (See the appendix for definitions of terms related to managed care.) Because these later forms of managed care are so varied and are changing so rapidly, however, credible estimates of their effects are difficult to make. Nevertheless,

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1. Congressional Budget Office, "The Effects of Managed Care on Use and Costs of Health Services," CBO Staff Memorandum (June 1992).
 2. Congressional Budget Office, "The Potential Impact of Certain Forms of Managed Care on Health Care Expenditures," CBO Staff Memorandum (August 1992).
 3. Group- and staff-model HMOs differ in organizational structure, but their effects on use of services, compared with fee-for-service care, are similar. Physicians in staff-model HMOs are employees of the HMO, whereas physicians in a group-model HMO are either partners or employees of the group practice that has a contractual arrangement with the HMO. In both models, the physicians' practice is open only to enrollees of the HMO.

this analysis draws on existing studies to formulate the limited conclusions they support.

This memorandum assesses the extent to which various forms of managed care reduce patients' use of services, thereby contributing to lower health care costs (defined here to include insurance benefits plus patients' out-of-pocket costs). The analysis does not consider the potential effects of managed competition, under which the health system would be fundamentally restructured in an effort to induce health plans to compete on the basis of efficiency.

Much of the evidence examined here refers to how use of services would change under alternative forms of managed care. However, changes in use do not always accurately reflect changes in cost, primarily because the usual measures of use (number of inpatient days or outpatient visits) ignore some differences in the complexity of services provided. In general, measured changes in use may overstate somewhat the resulting changes in the cost of services because the complexity of medical encounters will tend to increase as the frequency of encounters falls, and complexity will decrease as frequency rises. In addition, lower plan costs do not always result in lower premiums; the savings may be used instead to enhance the plan's benefits or to increase its profit.

Accurate measurement of the effects of managed care on use of services is difficult for a number of reasons. One problem is that current participants in certain forms of managed care may differ in significant ways from nonparticipants. When such biased selection occurs, studies that compare use of services between participants and nonparticipants may erroneously attribute all observed differences in use to managed care even though some or all of the difference is attributable instead to the different characteristics of participants. To minimize that problem, this memorandum examines only studies that make credible attempts to control for differences in those characteristics.

A second problem is that the characteristics of managed care programs are changing so rapidly that some of the programs are difficult not only to assess but even to define. Further, plans with no managed care component are rapidly disappearing, so the reference point against which the effects of managed care are gauged is shifting or nonexistent.

A third problem is the prevalence of varying levels of price discounts negotiated with providers as part of the package of benefits that plans offer to enrollees. When the effects on costs rather than on use of services is the only measure used to assess the plan, it is impossible to separate out the effects on use from the effects on price.

The latest evidence alters CBO's earlier assessments about managed care in two ways. First, the potential for health care savings from the most effective HMOs relative to the costs of care now typical in the fee-for-service sector has dropped. Most savings from HMOs are the result of reductions in use of inpatient services, and the potential for such savings from any plan is now lower because of the widespread shift of care to the outpatient sector. Further, the now nearly universal presence of utilization review in the fee-for-service sector has reduced differences in use between HMOs and fee-for-service plans. Thus, although group/staff HMOs might have reduced costs by up to 30 percent relative to costs in the fee-for-service sector in the late 1970s, they appear to save less than 10 percent now. Second, the financial success of an HMO could depend more on sharing the financial risks with physicians than on its type of organization. Well-managed IPAs with risk-sharing payment mechanisms might reduce use of services by as much as the best group/staff HMOs do, compared with the fee-for-service sector, but reductions achieved by other IPAs would be smaller.

Research has shown that physicians' treatment patterns are affected by the financial incentives they face. In particular, physicians paid by salary or on a capitated basis (fixed fee per patient-year) generally have less intensive

treatment patterns than those paid on a fee-for-service basis.⁴ When paid by salary or capitation, physicians have no financial incentive to provide unnecessary services, but physicians who are paid on a fee-for-service basis are rewarded for each service rendered.

Group- and staff-model HMOs make little or no use of fee-for-service payments, paying physicians either by salary or capitation. By contrast, 53 percent of IPAs pay physicians on a fee-for-service basis, and only 41 percent of those IPAs use any kind of bonus mechanism or withhold payments to providers who fail to meet certain performance standards as a means of inducing physicians to practice more cost-effectively.⁵ Further, it is not clear that either withholding payments or paying bonuses is as effective as the basic payment mechanism in altering physician treatment patterns. Influencing the behavior of physicians who operate independently in an IPA may be more difficult than influencing those in group/staff HMOs, where frequent contact with peers may foster closer adherence to the financial incentives of the HMO.⁶

4. A.L. Hillman, M.V. Pauly, and J.J. Kerstein, "How Do Financial Incentives Affect Physicians' Clinical Decisions and the Financial Performance of Health Maintenance Organizations?" *The New England Journal of Medicine*, vol. 321, no. 2 (July 13, 1989).

5. Group Health Association of America, *HMO Industry Profile, 1993 Edition*, Exhibit 4-5. Although individual physicians in a group-model HMO may receive fee-for-service payments, the physician group receives capitated payments from the HMO plan.

6. Hillman, Pauly, and Kerstein, "How Do Financial Incentives Affect Physicians' Clinical Decisions?"

IPAs and PPOs whose only mechanism for controlling costs is utilization review can expect to reduce the total costs of care by no more than a conventional fee-for-service plan with the same procedures for utilization review--by up to 4 percent compared with unmanaged fee-for-service care. Because most IPAs and PPOs eliminate or significantly reduce cost-sharing requirements for their enrollees, their costs may even increase instead of decrease because of the additional demand for services that results when cost sharing is negligible.

SAVINGS FROM UTILIZATION REVIEW

The best evidence indicates that utilization review (especially preadmission certification and concurrent review for inpatient stays) can reduce the use of health care services compared with unmanaged fee-for-service care and that the savings from utilization review exceed the costs (see Table 1).⁷ In a carefully controlled comparison of Aetna plans for 1987 and 1988, total costs were lower by 3.6 percent in plans that had utilization review programs for at least a year

7. In the table, effects on total health care costs are shown in two ways. One result is as reported by the authors of the studies, with inpatient and outpatient care weighted as they were for patients in the study. A second, "calculated" result combines the authors' reported results for inpatient and outpatient care by using expenditure weights from the 1987 National Medical Expenditure Survey for the under-65 population with insurance. For studies done in the late 1970s and early 1980s, the calculated results better reflect current patterns of use.

TABLE 1. PERCENTAGE CHANGE IN COSTS FROM UTILIZATION REVIEW COMPARED WITH UNMANAGED CARE

Study	Inpatient Care		Cost of Outpatient Care	Total Cost of Health Care		Ratio of Savings to Costs for UR	Total Cost of Health Care and UR	
	Days	Cost		Reported	Calculated		Reported	Calculated
Khandker-Manning ^a								
After One Year	-12.1	-8.0	1.2	-4.4	-4.4	6.0	-3.6	-3.7
Average 1987-1988	-9.0	-5.8	1.5	-3.0	-3.0	4.1	-2.3	-2.3
Feldstein-Wickizer-Wheeler ^b								
Average 1984-1985	-8.0	-11.9	-4.9	-8.3	-9.2	8.7	-7.3	-8.1
Wickizer-Wheeler-Feldstein ^c								
Average 1984-1986	-10.7	-8.3	-3.7	-5.9	-6.5	6.8	-5.0	-5.5
Scheffler-Sullivan-Ko ^d								
Average 1980-1988	-4.8	-4.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average 1988	-14.8	-9.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

SOURCE: Congressional Budget Office using data from studies cited.

NOTES: Utilization review (UR) includes preadmission certification and concurrent review for inpatient stays. Calculated results for the health care total use dollar weights from the 1987 National Medical Expenditure Survey (0.61 inpatient and 0.39 outpatient care). Total costs include either reported or calculated health care costs plus administrative costs, but only health care (not UR) costs are in the denominator of the reported percentages. n.a. = not available.

- a. R.K. Khandker and W.G. Manning, "The Impact of Utilization Review on Costs and Utilization," in P. Zweifel and H.E. Frech III, eds., *Health Economics Worldwide* (Netherlands: Kluwer Academic Publishers, 1992). Data are for Aetna plans for 1987 and 1988. An updated study, for 1987 to 1990, with similar but less complete results was done by R.K. Khandker, W.G. Manning, and T. Ahmed, "Utilization Review Savings at the Micro Level," *Medical Care*, vol. 30, no. 11 (November 1992).
- b. P.J. Feldstein, T.M. Wickizer, and J.R.C. Wheeler, "The Effects of Utilization Review Programs on Health Care Use and Expenditures," *The New England Journal of Medicine*, vol. 318, no. 20 (May 19, 1988). Results using only plans with high initial levels of use yielded a savings-to-cost ratio of 28.3.
- c. T.M. Wickizer, J.R.C. Wheeler, and P.J. Feldstein, "Does Utilization Review Reduce Unnecessary Hospital Care and Contain Costs?" *Medical Care*, vol. 27, no. 6 (June 1989).
- d. R.M. Scheffler, S.D. Sullivan, and T.H. Ko, "The Impact of Blue Cross and Blue Shield Plan Utilization Management Programs, 1980-1988," *Inquiry*, vol. 28 (Fall 1991).

compared with fee-for-service plans that had no utilization review.⁸ The study controlled for characteristics of enrollees (including prior use of services), the plan's benefits, group size, year, and seasonal effects.

The effect of utilization review appeared to reach its full potential after about one year's experience. Under a mature program, inpatient (hospital and physician) costs were reduced by 8.0 percent. Overall health care costs were lower by 4.4 percent, despite a small increase in the cost of outpatient care. Although administrative costs were higher, each dollar spent on utilization review reduced health care costs by about \$6, so that about 83 percent of the savings on health care costs remained after allowing for the offsetting increase in administrative costs. Similar results were reported in a follow-up study that included two additional years of experience under the Aetna plans.⁹

Although earlier studies reported larger savings from utilization review programs under other insurers, the authors of the study of the Aetna plans discussed above suggest that these other studies may overstate the effects because of statistical flaws. In particular, the authors demonstrate that they

8. R.K. Khandker and W.G. Manning, "The Impact of Utilization Review on Costs and Utilization," in P. Zweifel and H.E. Frech III, eds., *Health Economics Worldwide* (Netherlands: Kluwer Academic Publishers, 1992).

9. R.K. Khandker, W.G. Manning, and T. Ahmed, "Utilization Review Savings at the Micro Level," *Medical Care*, vol. 30, no. 11 (November 1992).

obtain larger estimates--much like the earlier studies cited in Table 1--when they eliminate their controls for prior use of services among participants.

In 1990, only 5 percent of people with employment-based health insurance were in unmanaged fee-for-service plans.¹⁰ However, of those in managed fee-for-service plans, only half were in fully effective plans (that is, plans with precertification and concurrent review of inpatient stays). Thus, the usual forms of utilization review may still yield additional savings. Further, plans might realize greater savings relative to costs by targeting review activities more efficiently. For example, one study found that the ratio of savings to costs for utilization review was more than three times higher when review was focused on groups of enrollees with initially high levels of use than when the review was not targeted.¹¹

For its estimates, CBO assumes that mature utilization review programs that include preadmission certification and concurrent review of inpatient stays would reduce the use of health care services by about 4 percent compared with the unmanaged fee-for-service sector. CBO assumes that other, less effective utilization review programs reduce use of services by about 2 percent. Under these assumptions, the current mix of managed and unmanaged care in the

10. E.W. Hoy, R.E. Curtis, and T. Rice, "Change and Growth in Managed Care," *Health Affairs*, vol. 10, no. 4 (Winter 1991), Exhibit 1.

11. P.J. Feldstein, T.M. Wickizer, and J.R.C. Wheeler, "The Effects of Utilization Review Programs on Health Care Use and Expenditures," *The New England Journal of Medicine*, vol. 318, no. 20 (May 19, 1988).

privately insured fee-for-service sector reduces use of services, on average, by an estimated 2.8 percent.¹²

SAVINGS UNDER PREFERRED PROVIDER ORGANIZATIONS

Preferred provider organizations can generate savings compared with the fee-for-service sector by channeling patients to low-cost "preferred" providers who have been selected because of their efficient treatment patterns or because they have agreed to accept the insurer's discounted payments and its utilization review program. These potential savings are at least partly offset, however, by the incentives the PPOs use to induce patients to use the preferred providers--typically lower cost-sharing requirements. Lower cost sharing increases insurers' reimbursement costs directly, and it also increases total costs because it encourages patients to make greater use of services. Because the PPO's lower cost-sharing requirements increase use of services, only tightly managed PPOs will generate net savings compared with unmanaged care.

12. This finding is based on survey results from the Health Insurance Association of America that show that for people in employment-based fee-for-service plans, about 47 percent are in effective plans (with preadmission certification and concurrent review of inpatient stays), 47 percent are in less effective managed care plans, and about 6 percent are in unmanaged plans. It assumes that the extent of managed care in non-employment-based plans mirrors that for the employment-based plans surveyed.

To date, only one study--at RAND--has found savings from PPOs, and these findings may reflect fee discounts and selection bias (the tendency of healthier people to choose managed care) rather than lower use of services by comparable enrollees.¹³ The study examined five employer plans with a PPO option. Because of lower use of ambulatory services and fee discounts (in some cases) from PPO providers, costs for PPO participants were lower than for non-PPO participants in four of the five plans examined by RAND (see Table 2). The authors believe that the selection of low-cost providers accounted for the savings on outpatient services because each PPO's utilization review focused only on inpatient care.

Two other studies found that PPOs increased costs compared with conventional fee-for-service care (see Table 2).¹⁴ One of these studies, by Garnick and others, examined in more detail one of the five plans included in the RAND study. The Garnick study looked at RAND's Employer C for 1984 (the PPO's first year) whereas the results reported in Table 2 for the RAND study were for the PPO's second year. Even for 1984, though, the RAND study shows average savings of about 2 percent for Employer C's PPO plan; Garnick's results, however, indicate that the PPO increased costs--at least for the specific

13. S.D. Hosek, M.S. Marquis, and K.B. Wells, "Health Care Utilization in Employer Plans with Preferred Provider Organization Options," No. R-3800-HHS/NIMH (RAND, Santa Monica, Calif., February 1990).

14. D.W. Garnick and others, "Services and Charges by PPO Physicians for PPO and Indemnity Patients," *Medical Care*, vol. 28, no. 10 (October 1990); and J. Zwanziger and R.R. Auerbach, "Evaluating PPO Performance Using Prior Expenditure Data," *Medical Care*, vol. 29, no. 2 (February 1991).

TABLE 2. PERCENTAGE CHANGE IN COSTS UNDER FEE-FOR-SERVICE PLANS AFTER A PREFERRED PROVIDER OPTION IS PUT IN PLACE

Study	Features of Preferred Provider Option		Percentage Change in Total Health Care Costs
	Cost Sharing	Fee Discounts	
Hosek-Marquis-Wells^a			
Employer A	no	yes	b
Employer B	yes	no	b
Employer C	no	yes	-11.5
Employer D	yes	yes	5.1
Employer E	yes	no	-38.1
Garnick and Others^c			
Chest pain episode	no	yes	3.0
Back pain episode	no	yes	47.2
Intestinal/liver episode	no	yes	21.7
Hypertension episode	no	yes	9.9
Joint pain episode	no	yes	55.8
Zwanziger-Auerbach^d	no	yes	73.0

SOURCE: Congressional Budget Office using data from studies cited.

- a. S.D. Hosek, M.S. Marquis, and K.B. Wells, "Health Care Utilization in Employer Plans with Preferred Provider Organization Options," No. R-3800-HHS/NIMH (RAND, Santa Monica, Calif., February 1990). Data are for various years, 1984 through 1986. Results are for employees only and not for dependents.
- b. For these employer plans, total costs fell for PPO participants, but the study did not report predicted values in the absence of PPO participation. Hence, percentage changes could not be calculated.
- c. D.W. Garnick and others, "Services and Charges by PPO Physicians for PPO and Indemnity Patients," *Medical Care*, vol. 28, no 10 (October 1990). Data are for 1984.
- d. J. Zwanziger and R.R. Auerbach, "Evaluating PPO Performance Using Prior Expenditure Data," *Medical Care*, vol. 29, no. 2 (February 1991). Data are for 1985 through 1987.

medical episodes examined. For each kind of episode, PPO participants saw their physicians more--and had correspondingly higher costs per episode--than nonparticipants did.

Methodological differences may account for the apparently contradictory findings between the RAND and Garnick studies. First, the effects shown from the RAND study include savings resulting from price discounts agreed to by PPO providers; the Garnick study based its results on undiscounted charges as a better proxy for use. Second, Garnick's episode-based analysis is probably better at eliminating the effects of selection bias than the demographic controls used in the RAND study.

All of the studies of PPOs cited here, however, were based on data from PPOs that had just been put in place. With longer experience, PPOs might improve their performance as they learn how better to identify low-cost providers and the most effective utilization review procedures. In addition, the studies were confronted with substantial problems of measurement, especially in defining PPO participants. Because the typical PPO is part of an insurance plan in which enrollees may choose to use PPO providers or not for each new episode of care, the appropriate definition of a PPO participant is not clear-cut. For PPOs that do not enroll participants, analysts variously define patients as PPO participants if their regular source of care was a PPO provider or if they

received the majority of their care from PPO providers. Because of this definitional problem, all of the reported results are questionable. Nevertheless, some conclusions may be drawn.

If they retain cost-sharing requirements, well-managed PPOs ought to be able to achieve, at a minimum, the same savings from effective utilization review or selection of low-cost providers that otherwise unmanaged fee-for-service plans can obtain from utilization review (about 4 percent of health care costs). Additional savings would accrue from any fee discounts negotiated with providers, although such discounts would not reflect a reduction in use of services. PPOs that eliminate or greatly reduce cost-sharing requirements are likely to find that patients' demand for services increases by as much as 23 percent, swamping the effects of utilization review.¹⁵ Hence, unless the PPO negotiates discounts large enough to offset this increase in demand, costs may rise rather than fall for PPOs that significantly reduce cost-sharing requirements. Only tightly controlled PPOs, or those with a carefully selected panel of efficient providers whose cost-conscious treatment patterns are rewarded, can expect to reduce use of services while eliminating cost sharing. In some states, however, PPOs (along with other kinds of network plans) are now required by law to enroll all providers in the service area who wish to be included under the plan.

15. For evidence on the effects of cost sharing on patients' use of services, see Congressional Budget Office, "Behavioral Assumptions for Estimating the Effects of Health Care Proposals," CBO Memorandum (November 1993).

CBO assumes that the current mix of PPOs reduces use of services by about 2 percent, on average, before consideration of the effects of cost-sharing requirements. This assumption reflects a mix of programs, some having fully effective utilization review with savings of 4 percent and others having less effective review. CBO modifies this assumption, when appropriate, to incorporate both the estimated effects on use of services from cost-sharing requirements that are lower than those typical for the fee-for-service sector and the estimated effects on costs from price discounts negotiated with providers.

SAVINGS UNDER HEALTH MAINTENANCE ORGANIZATIONS

Health maintenance organizations are of two broad types, although there is significant variation within each type and the distinctions between them are becoming blurred. One type is the group or staff model, in which physicians treat only HMO patients and patients' use of out-of-plan providers is quite limited. The second type is the IPA, in which physicians treat a variety of patients from both IPA and fee-for-service plans.¹⁶ The general consensus is that group/staff HMOs are able to exert considerable influence on their providers' practice patterns because the HMO provides physicians with their

16. The "network" HMO classification seen in many reports is most usefully incorporated into the IPA category if it is composed of independent practices that treat patients from various insurance plans--some prepaid and some fee-for-service. If, instead, the independent practices all have exclusive contracts with one HMO, it should be classified as a group-model HMO.

entire patient load. Other types of managed care, such as IPAs and PPOs, are less effective, partly because they have less exclusive arrangements with providers. In IPAs and PPOs, providers typically treat patients from a number of health plans, thus reducing the influence of any one insurer on practice patterns. Plans that permit patients to use out-of-plan providers further reduce their ability to control practice patterns.

HMOs generally provide health care that is roughly comparable with that available in the fee-for-service (FFS) sector at a lower total cost per patient. Compared with people in FFS plans, HMO enrollees tend to be more satisfied with their plan's benefits and premiums but less satisfied with their access to and their interactions with HMO physicians.¹⁷

The best early study (for the late 1970s) comparing use of services for patients randomly assigned either to a mature staff-model HMO or to a fee-for-service insurance plan was done as part of the RAND Health Insurance Experiment.¹⁸ This study found that patients in the HMO used significantly

17. R.H. Miller and H.S. Luft, "Research on the Cost-Effectiveness of Managed Care Health Plans: A Literature Analysis" (Final Report to the Office of the Assistant Secretary for Health, Department of Health and Human Services, February 1, 1994). Measured in terms of treatment processes and outcomes, HMOs appear to provide care that is roughly comparable with that provided in the fee-for-service sector for most conditions, with two broad exceptions. First, HMOs tend to provide more preventive services than FFS plans do, even after eliminating the effects of different cost-sharing requirements. Second, primary care physicians in HMOs are less likely to appropriately diagnose or treat patients with depressive disorders, although treatment matches that provided in FFS plans once the patient is referred to a mental health specialist.

18. W.G. Manning and others, "A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services," *The New England Journal of Medicine*, vol. 310, no. 23 (June 7, 1984).

fewer hospital inpatient days, partly offset by somewhat higher use of outpatient services. When weighted by more recent (1987) spending patterns for inpatient and outpatient services, the RAND results show savings of about 24 percent compared with unmanaged fee-for-service care with no cost-sharing requirements, and savings of about 18 percent compared with an unmanaged fee-for-service plan with a 25 percent cost-sharing requirement (see Table 3).¹⁹

Other studies for the mid-1980s found somewhat smaller effects.²⁰ A study comparing HMOs (both group/staff and IPAs) with fee-for-service plans with no cost-sharing requirements in Minneapolis showed savings of about 18 percent, compared with the savings of 24 percent found in the RAND study.²¹ The Minneapolis study did not permit separation of the effects of group/staff HMOs from those of IPAs. Another study of four selected specialties in three large cities found that HMOs, on average across all types, generated savings of about 14 percent compared with the fee-for-service plans (with cost sharing)

19. For this calculation, inpatient services had a weight of 61 percent. In the RAND study, reported savings were about 28 percent, and inpatient services accounted for about 70 percent of total expenditures.

20. Although a number of other studies on the effects of HMOs since the mid-1980s have been done, they are not discussed here because they are so limited. Not only do they (like the RAND, Dowd, and Greenfield studies) focus on just one or a few plans that may not be nationally representative, but their measures of effects on use are incomplete as well.

21. B. Dowd and others, "Health Plan Choice and the Utilization of Health Care Services," *Review of Economics and Statistics*, vol. 73, no. 1 (February 1991).

TABLE 3. PERCENTAGE CHANGE IN USE OF SERVICES UNDER HEALTH MAINTENANCE ORGANIZATIONS COMPARED WITH FEE-FOR-SERVICE PLANS

Study	Inpatient Days	Outpatient Visits	Calculated Change in Total Cost of Health Care
Manning and Others (RAND) ^a			
Staff-model HMO compared with:			
FFS with no cost sharing	-41.0	2.4	-24.1
FFS with 25 percent cost sharing	-43.7	22.9	-17.7
Dowd and Others ^b			
All HMO types compared with FFS with no cost sharing	-29.3	-0.7	-18.1
Greenfield and Others ^c			
FFS with typical cost sharing compared with:			
All HMOs	-28.6 ^d	7.9	-14.4
Staff model	-26.8 ^d	9.3	-12.7
Group model	-37.1 ^d	10.5	-18.5
IPA model	-27.0 ^d	1.2	-16.0
Lewin-VHI ^e			
FFS with typical cost sharing compared with:			
All HMOs	-11.7	8.4	-3.9
Group/staff model	-19.1	6.6	-9.1
IPA model	-6.9	9.9	-0.3
Brown-Hill (Medicare only) ^f			
FFS with typical cost sharing compared with:			
All HMOs	-16.7	7.6	-7.2
Staff model	-12.5	25.6	2.4
Group model	-15.5	15.7	-3.3
IPA model	-18.8	-2.8	-12.6

SOURCE: Congressional Budget Office using data from studies cited.

NOTE: Results in last column use a weight of 0.61 for inpatient care and 0.39 for outpatient care. They assume that changes in use result in comparable changes in cost.

- a. W.G. Manning and others, "A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services," *The New England Journal of Medicine*, vol. 310, no. 23 (June 7, 1984). Data are for 1976-1980. Authors' reported results for total health care costs show a reduction of 28 percent.
- b. B. Dowd and others, "Health Plan Choice and the Utilization of Health Care Services," *Review of Economics and Statistics*, vol. 73, no. 1 (February 1991). Data are for 1984.
- c. S. Greenfield and others, "Variations in Resource Utilization Among Medical Specialties and Systems of Care," *Journal of the American Medical Association*, vol. 267, no. 12 (March 25, 1992). Data are for 1986. Differences by model type are not significant.
- d. Authors measured hospital use by number of admissions rather than total days.
- e. Lewin-VHI, *The Financial Impact of the Health Security Act* (Lewin-VHI, Inc., Fairfax, Va., December 9, 1993), Appendix A. Data are for 1989.
- f. R.S. Brown and J. Hill, "Does Model Type Play a Role in the Extent of HMO Effectiveness in Controlling the Utilization of Services?" (Mathematica Policy Research, Inc., Princeton, N.J., May 10, 1993). Data are for 1989. Differences by model type are not significant.

typical at the time (1986).²² This study attempted to distinguish the effects of IPAs from those of group/staff HMOs, although it was unable to define the different model types unambiguously. The differences found for different types of HMOs were not statistically significant.

The findings from the three studies discussed above, however, were probably not representative of HMOs nationwide, even for the periods covered by the studies. In addition, utilization review in fee-for-service plans has become considerably more prevalent since the mid-1980s, and savings for HMOs compared with those for the typical fee-for-service plan would therefore be lower now. In fact, a well-designed study by Lewin-VHI using nationally representative data for the non-Medicare population from the 1989 Health Interview Survey indicates that on average for all model types, HMOs saved about 4 percent compared with the 1989 mix of fee-for-service plans (or 6.7 percent compared with unmanaged FFS plans).²³ Group/staff HMOs saved an average of about 9 percent (or 11.6 percent compared with unmanaged FFS plans), and IPAs saved an average of only about 0.3 percent (or 3.2 percent

22. S. Greenfield and others, "Variations in Resource Utilization Among Medical Specialties and Systems of Care," *Journal of the American Medical Association*, vol. 267, no. 12 (March 25, 1992). The four specialties were family practice, general internal medicine, cardiology, and endocrinology. The three cities were Boston, Chicago, and Los Angeles.

23. These results were reported in Appendix A of the Lewin-VHI report, *The Financial Impact of the Health Security Act* (Lewin-VHI, Inc., Fairfax, Va., December 9, 1993). The results cited are based on an unpublished regression study by analysts at Lewin-VHI. The sample included people under age 65 who were covered by some type of insurance other than Medicare. Respondents identified the type of insurance they had (group/staff HMO, IPA, or FFS) and the name of their health plan; survey staff used the plan name to verify and (if necessary) correct the plan type given by the respondent. The effects of plan type on use of services—separately for outpatient visits (all sites) and for hospital inpatient days—were estimated, controlling for age, sex, race, health status, education, income, and location.

compared with unmanaged FFS plans).²⁴ This latter result does not mean that IPAs cannot do significantly better than fee-for-service plans with utilization review programs. Tightly controlled IPAs with effective utilization review or risk sharing by providers might operate as effectively as group/staff HMOs, but many IPAs currently lack these characteristics.

A study limited to the Medicare population, also for 1989, indicates that HMOs of all types saved about 7 percent compared with Medicare's fee-for-service plan.²⁵ Because that plan was essentially unmanaged in 1989, this result is consistent with the results discussed above from the Lewin-VHI study. The Medicare study found no significant differences in effectiveness among the different types of HMOs, prompting its authors to conclude that "IPAs are as effective as other model types in controlling the use of any service covered by Medicare, with the possible exception of skilled nursing facilities."²⁶ However, because of biased attrition from the sample of HMOs used for the study, such a generalization does not seem to be warranted. The study included only large HMOs that participated in Medicare's risk-contracting program throughout the study period. Because unsuccessful plans, which were

24. The calculations for unmanaged fee-for-service plans assume that fully effective utilization review reduces costs by 4 percent, but that costs on average are lower in the fee-for-service sector now by only 2.8 percent. This result is the average effect from the 47 percent of private fee-for-service plans that have fully effective utilization review programs (4 percent savings), the 47 percent that have less effective programs (2 percent savings), and the 6 percent that are unmanaged (no savings).

25. R.S. Brown and J. Hill, "Does Model Type Play a Role in the Extent of HMO Effectiveness in Controlling the Utilization of Services?" (Mathematica Policy Research, Inc., Princeton, N.J., May 10, 1993).

26. Ibid., p. 1.

predominantly IPAs, withdrew from the program over the course of the study, the results are valid only for successful plans serving the Medicare population.

For its estimates, CBO relies on the Lewin-VHI study because it controls for selection bias, is nationally representative, and applies to a relatively recent period (1989). Thus, CBO assumes that group/staff HMOs with typical copayment requirements save about 9 percent compared with the typical fee-for-service plan. Savings credited to IPAs that have typical cost-sharing requirements range from nothing to 9 percent, depending on how the IPAs are managed. Maximum savings would be credited for IPAs that select cost-conscious providers, maintain an effective network for information and control, place providers at financial risk, and generate a substantial portion of each provider's patient load. No savings would be credited for IPAs that accept all willing providers and that pay fee-for-service providers who do not share the risk. If new HMO enrollment would be expected to reflect the current enrollment mix in group/staff and IPA models, CBO would credit savings of about 4 percent for people moving from the fee-for-service sector. This assumption would be modified as appropriate to reflect any change from the cost-sharing requirements that are now typical for each type of plan.

